

August 15, 2019



U.S. Department
of Transportation

East Building, PHH-30
1200 New Jersey Avenue S.E.
Washington, D.C. 20590

**Pipeline and Hazardous
Materials Safety Administration**

DOT-SP 20440
(FIRST REVISION)

EXPIRATION DATE: 2023-07-31

(FOR RENEWAL, SEE 49 CFR 107.109)

1. GRANTEE: Nellis Engineering, Inc.
West Sacramento, CA
2. PURPOSE AND LIMITATION:
 - a. This special permit authorizes the transportation in commerce of low production lithium ion batteries and these batteries contained in equipment that are not of a type proven to meet the requirements of the UN Manual of Tests and Criteria aboard cargo-only aircraft. This special permit provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein. The most recent revision supersedes all previous revisions.
 - b. The safety analyses performed in the development of this special permit only considered the hazards and risks associated with the transportation in commerce.
 - c. No party status will be granted to this special permit.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR § 173.185(a)(1) in that each lithium battery must be of the type proven to meet the criteria in Part III, subsection 38.3 of the UN Manual of Tests and Criteria, except as stated herein.
5. BASIS: This special permit is based on the application of Nellis Engineering, Inc. dated June 24, 2019, submitted in accordance with § 107.109.

6. HAZARDOUS MATERIALS (49 CFR 172.101):

Hazardous Materials Description			
Proper Shipping Name	Hazard Class/ Division	Identification Number	Packing Group
Lithium ion batteries*	9	UN3480	N/A
Lithium ion batteries contained in equipment*	9	UN3481	N/A

*Only "low production batteries" are allowed under this special permit. ("Low production" is defined as a production run of not more than 100 cells or batteries annually of a type. Each different cell and battery type must comply with all the conditions of this special permit prior to being offered for transportation)

7. SAFETY CONTROL MEASURES:a. OPERATIONAL CONTROLS:

(1) The batteries are comprised of Shenzhen GRP5459156-5C cells.

(2) This special permit authorizes shipment of the following:

(i) Three types of batteries with the maximum energy ratings of 337 Wh, 675 Wh, and 844 Wh each; and

(ii) These batteries contained in equipment (Diver Propulsion Vehicles (DPV)) with not more than two batteries for each type that are not connected during shipment and form a pair within the DPV ready for connection in series at the time of use.

(3) All cells must be stored for at least 90 days prior to assembling them into batteries to allow any cells with internal shorts for removal from production.

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(4) The batteries and the batteries contained in equipment must be equipped with an effective means of preventing dangerous reverse current flow when connected in parallel.

(5) A battery management system (BMS) must be installed on each battery to ensure voltage uniformity across cells, to prevent over-discharge, to ensure correct calibration of voltages, to prevent overheat, to limit maximum charge and maximum voltage, and to cut off current between the battery and the DPV in the event of inadvertent discharge.

(6) The battery must be protected against external short-circuiting.

(7) The battery housing must be designed to allow venting if necessary by breaking the adhesive seal around either end cap.

(8) The batteries, including those contained in equipment, must be offered for transportation at a state of charge not exceeding 30%.

b. TESTING:

(1) All lithium ion cells must be of a type that has passed tests including the tests for external short circuit, thermal shock, crush, altitude simulation, temperature cycling, and vibration as specified in DOC No. 001 in Nellis Engineering, Inc.'s application dated March 16, 2017 and on file with the Office of Hazardous Materials Safety Approvals and Permits Division.

(2) The lithium ion batteries need not be of a type that has passed the tests in accordance with the UN Manual of Tests and Criteria, 5th Revised Edition.

c. PACKAGING:

(1) Batteries:

(i) Inner packaging: Each battery must be individually packed in a non-metallic inner packaging.

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(ii) Outer packaging: Not more than two inner packages, surrounded by cushioning material that is non-combustible and non-conductive, must be packed in one of the following packagings that meet Packing Group I performance criteria:

(A) Metal (4A, 4B, 4N), wooden (4C1, 4C2, 4D, 4F), or solid plastic (4H2) box; or

(B) Metal (1A2, 1B2, 1N2), plywood (1D), or plastic (1H2) drum.

(2) The batteries contained in equipment:

(i) Not more than two batteries that must not be connected during transport may be installed in each DPV.

(ii) Each DPV, surrounded by cushioning material, must be placed inside an outer packaging made of a double-walled, 275 pound burst tested fiberboard box.

(iii) The DPV must afford protection equivalent to Packing Group I performance criteria.

(3) The DPV must be securely fastened against movement within the outer packaging and be packed so as to prevent accidental operation.

(4) The net weight of the batteries packed individually and contained in equipment within a package may not exceed 4.6 kg, 9.4 kg, and 11 kg for a pair of 337 Wh, 675 Wh, and 844 Wh batteries, respectively.

d. MARKING: Each package, or overpack if used, must be marked with the special permit number, "DOT-SP 20440", in accordance with § 172.301(c).

8. SPECIAL PROVISIONS:

a. Under the terms of this special permit, the grantee may only offer hazardous materials (i.e., the grantee is not authorized as a carrier).

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- b. A person who is not a holder of this special permit who receives a package covered by this special permit may reoffer it for transportation provided no modification or change is made to the package and it is reoffered for transportation in conformance with this special permit and the HMR.
- c. A current copy of this special permit must be maintained at each facility where the package is offered or reoffered for transportation.
- d. For each cell and battery type, the grantee must maintain the following record and upon request make this record available to DOT representatives or enforcement officials. The record to be maintained is as follows:
- (1) A description of each cell and battery type and types of tests conducted and test results prior to offering for transportation.
 - (2) Dates and description of each shipment, to include number of cells and batteries.
9. MODES OF TRANSPORTATION AUTHORIZED: Cargo-only aircraft.
10. MODAL REQUIREMENTS: A current copy of this special permit must be carried aboard each aircraft used to transport packages covered by this special permit. The shipper must furnish a copy of this special permit to the air carrier before or at the time the shipment is tendered.
11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this special permit and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:
- o All terms and conditions prescribed in this special permit and the Hazardous Materials Regulations, 49 CFR Parts 171-180.
 - o Persons operating under the terms of this special permit must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.
 - o Registration required by § 107.601 et seq., when applicable.

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Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this special permit must receive training on the requirements and conditions of this special permit in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this special permit, including display of its number, when this special permit has expired or is otherwise no longer in effect.

Under Title VII of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)—"The Hazardous Materials Safety and Security Reauthorization Act of 2005" (Pub. L. 109-59), 119 Stat. 1144 (August 10, 2005), amended the Federal hazardous materials transportation law by changing the term "exemption" to "special permit" and authorizes a special permit to be granted up to two years for new special permits and up to four years for renewals.

12. REPORTING REQUIREMENTS: Shipments or operations conducted under this special permit are subject to the Hazardous Materials Incident Reporting requirements specified in 49 CFR §§ 171.15 - Immediate notice of certain hazardous materials incidents, and 171.16 - Detailed hazardous materials incident reports. In addition, the grantee(s) of this special permit must notify the Associate Administrator for Hazardous Materials Safety, in writing, of any incident involving a package, shipment or operation conducted under terms of this special permit.

Issued in Washington, D.C.:



for William Schoonover

Associate Administrator for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Pipeline and Hazardous Material Safety Administration, U.S. Department of Transportation, East Building PHH-30, 1200 New Jersey Avenue, Southeast, Washington, D.C. 20590.

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Copies of this special permit may be obtained by accessing the Hazardous Materials Safety Homepage at http://hazmat.dot.gov/sp_app/special_permits/spec_perm_index.htm. Photo reproductions and legible reductions of this special permit are permitted. Any alteration of this special permit is prohibited.

PO: SH/TG